

REMARKS

The Office Action dated April 28, 2005 has been reviewed and carefully considered. Claims 22-31 are added. Claims 1-31 are pending in this case, the independent claims being 1 and 22. The Examiner's indication of allowable subject matter for claims 6, 9 and 12 is appreciated. No claim is amended. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

Claims 1, 5, 7-8, 10-11 and 13-21 stand rejected under 35 U.S.C. 103(a) as unpatentable over "SPIE Proceedings series, 1995" by Ahanger et al. ("Ahanger") in view of U.S. Patent No. 6,389,168 to Altunbasak et al. ("Altunbasak").

Claim 1 recites:

A descriptor, embodied within a computer-readable medium, said descriptor being configured to represent, from a video indexing viewpoint, motions of a camera or any kind of observer or observing device, said descriptor being configured for flexibility with respect to how many frames are to be retrieved from a database, and, in particular, to cover the case of one frame, configured to represent the motions within any one frame of a video sequence, and, to cover the case of more than one frame, configured to represent any series comprised of a plurality of frames of the video sequence, the motions represented in said descriptor comprising, for said any one frame and for said series, respectively, . . .

Ahanger, by contrast, fails to disclose or suggest a descriptor with the "flexibility" of the descriptor of the present claim 1.

For example, claim 1 recites, ". . . said descriptor being . . . configured to represent the motions within any one frame of a video sequence."

Item 5 of the Office Action, at the top of page 3, cites to the last three paragraphs of Section 4 (Query Formulation) in Ahanger, but this passage fails to disclose or suggest the immediately-above-quoted feature of the invention.

With regard to the histogram in claim 1, Ahanger discloses a query using, as one attribute, a histogram representing color to identify an appropriately-colored object in the video, but the query uses camera motion as a separate attribute with no suggestion of any histogram.

Ahanger fails to disclose or suggest a histogram representing motion in a video.

In particular Ahanger fails to disclose or suggest:

each of said motions represented, except fixed, is oriented and subdivided, in the representation, into two components that stand for two different directions, magnitudes of the respective components each corresponding to a respective predefined size of displacement, the sizes being corresponding values of a dependent variable that defines a histogram for the descriptor

Although Altunbasak discloses a histogram representing motion in a video, Altunbasak uses the histogram only to decide which video sequences to index (col. 3, line 41(42): “indexing”) in building its database (col. 7, lines 24-65) and fails to suggest use of a histogram to retrieve from a database.

For at least the above reason(s), Altunbasak lacks any disclosure or suggestion of a descriptor configured “for flexibility with respect to how many frames are to be retrieved from a database . . . , each of said motions represented, except fixed, is oriented and subdivided, in the representation, into two components that stand for two different directions, magnitudes of the respective components each corresponding to a respective predefined size of displacement, the sizes being corresponding values of a dependent

variable that defines a histogram for the descriptor,” which language appears explicitly in claim 1.

Also, and further with regard to the above-discussed flexibility of the present invention, Altunbasak, in addition to offering no suggestion of histogram-based query, is not designed, even in its histogram-based, database-building indexing, “. . . to represent the motions within any one frame of a video sequence.”

In particular, the Altunbasak histogram-based, database-building indexing is not “configured for flexibility . . . and, in particular, to cover the case of one frame, configured to represent the motions within any one frame of a video sequence . . .,” at least because Altunbasak frames with no motion or insufficient motion, i.e., not exceeding a threshold (col. 3, line 40(41); col. 4, line 33), could not be indexed by the Altunbasak indexing device (col. 3, lines 38-42; col. 4, lines 31-33).

Additionally, the Altunbasak histogram-based, database-building indexing is not “configured for flexibility . . . and, to cover the case of more than one frame, configured to represent any series comprised of a plurality of frames of the video sequence . . .,” at least because any particular frame may or may not be indexed depending on whether difference from an ideal histogram exceeds a predetermined threshold (col. 3, line 40(41): “exceeds a predetermined threshold”).

It is accordingly unclear how any descriptor implied from Ahanger would be modified, in view of Altunbasak, to resemble claim 1 of the present invention. It is also unclear what motivation would have existed for such a modification.

The Office Action offers as motivation, in the last full paragraph of page 3, “. . . so that the user can retrieve desired/selected video frames that include a query object.”

Firstly, however, the motivation offered by the Office Action does not explain how any resulting combination of references would have overcome the above-discussed deficiencies in the references with respect to any-one-frame/any-plural-frames retrieval flexibility.

Secondly, the motivation offered by the Office Action seemingly amounts to a general statement of what just about every conceivable video retrieval system would desire as a capability.

The Office Action falls short of explaining by what motivation the Altunbasak histogram for deciding whether a given frame of the video is to be, or is not to be, indexed in building a video database would have suggested use of a histogram in the Ahanger database query for a plurality of frames.

For at least the above reasons, Ahanger and Altunbasak, alone or in combination, fail to render obvious the present invention as recited in claim 1 as amended.

Claim 2 stands rejected under 35 U.S.C. 103(a) as unpatentable over Ahanger in view of Altunbasak and Miyatake.

Claim 2 depends from claim 1. Miyatake operates by correlating the “displacement between frames” (Summary of the Invention: col. 2, lines 37-38), and does not disclose or suggest a descriptor for a single frame. For at least this reason, Miyatake fails to compensate for the shortcomings of Ahanger and Altunbasak.

For at least this reason, the proposed combination of prior art references fails to render obvious the invention as recited in claim 2.

Claims 3, 4 and 16 stand rejected under 35 U.S.C. 103(a) as unpatentable over Ahanger in view of Altunbasak and Jeannin.

Claims 3, 4 and 16 depend from claim 1. Jeannin is directed to estimating motion between segmented images, but cannot make up for the above-described deficiencies in Ahanger and Altunbasak.

Regarding claim 4, the Examiner takes Official Notice that it is well-known to round motion vector magnitudes to the closest half-pixel value and multiply by 2, but the applicant does not believe this procedure to be well-known.

Notably, the Examiner took Official Notice as to claim 4 in an earlier Office Action and the Official Notice was traversed by the applicant. As the Board of Appeals pointed out to the Examiner, the Examiner has failed to meet the obligation of providing a supporting reference.

As to the other rejected claims, each depends from a respective base claim and is deemed to be patentable over the cited prior art at least due to its dependency from its base claim. However, each of the dependent claims relates to a further aspect of the invention, and warrants extra consideration based on its additional, individual merits.

Newly-added base claim 22 amounts to a broadening of base claim 1, and distinguishes over the prior art of record for at least all of the reasons set forth above with regard to base claim 1.

The other new claims, 23 to 31, are duplicates of claims 2, 7, 8, 10, 14, 17-19 and 21, except that they depend from base claim 22 rather than from base claim 1.


A check for \$500.00 (= 10 x \$50.00) is enclosed in payment of the fee for adding ten, additional dependent claims in excess of twenty.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

Russell Gross
Registration No. 40,007

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By: Steve Cha
Attorney for Applicant
Registration No. 44,069

Mail all correspondence to:
Russell Gross, Registration No. 40,007
US PHILIPS CORPORATION
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9608
Fax: (914) 332-0615

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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)


(Signature and Date)